

Application No. 10/074,653
Amendment dated August 25, 2003
Reply to Office Action of June 25, 2003

Amendments to the Specification:

Please replace paragraph [0002] with the following amended paragraph:

A1
[0002] This invention relates to a variable optical attenuator for use in optical telecommunications networks. Specifically, the present invention provides a polarization insensitive Variable Optical Attenuator (VOA) based on ~~an~~ a polymer dispersed liquid crystal Electrically Switchable Bragg Grating (ESBG).

Please replace paragraph [0010] with the following amended paragraph:

A2
[0010] The undiffracted beam 40 is reflected by the polarization-converting reflector 50 such that the reflected beam 60 has a polarization state that is rotated by 90 degrees with respect to the polarization state of the undiffracted beam 40. There are several well-known combinations of optical components that can be used to form a polarization-converting reflector. Specifically, the polarization-converting 50 may be comprised of a mirror 50a and a ~~one-quarter wave~~ quarter-wave retarder 50b, in which case the retarder must be oriented with its optical axis at a 45-degree angle with respect to the fringe planes in the ESBG device. Alternately, the polarization-converting reflector 50 may be comprised of a mirror 50a and a 45-degree Faraday rotator 50b, in which case precise alignment of the Faraday rotator is not required.

Please replace the ABSTRACT with the following amended ABSTRACT:

A3
An apparatus is disclosed for an electrically variable optical attenuator. The apparatus is comprised of ~~an~~ a polymer dispersed liquid crystal Electrically Switchable Bragg Grating device and a polarization-converting reflector. The polarization-converting reflector may be a ~~one-quarter wave~~ quarter-wave retardation plate or a 45-degree Faraday rotation plate in combination with a mirror. The electrically variable optical attenuator is suited for use in fiber optics communications systems.

An unmarked version of the replacement ABSTRACT is provided in an Appendix to this paper.

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Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

AY
Claim 1 (currently amended): A variable optical attenuator comprising an a polymer dispersed liquid crystal Electrically Switchable Bragg Grating device positioned to accept an incident optical beam and divide said beam into a transmitted undiffracted component and a diffracted component, and a polarization-converting reflector positioned to reflect said undiffracted beam back through said Electrically Switchable Bragg grating device.

Claim 2 (currently amended): The device of claim 1 wherein said polarization converting reflector is comprised of a ~~one-quarter-wave~~ quarter-wave retardation plate and a mirror.

Claim 3 (original): The device of claim 1 wherein said polarization converting reflector is comprised of a 45-degree Faraday rotation plate and a mirror.